

Class – XI
Assignment: - 1-D Arrays

Hint:-

1. A UDF should take array and its size as parameter e.g. header of Reverse function is `void Reverse(int a[],int n){ }`
2. For traversing in loop use `for(i=0;i<n;i++)` //forward traversal and `for(i=n-1;i>=0;i--)` //backward traversal as per the question

Q1 Write a menu driven Program using UDF to // **for practical file**

- a. reverse of an array
- b. display sum of even elements and odd elements.
- c. display elements of even location e.g. display data 0, 2, 4, 6...
- d. returns sum of all the elements of an array.
- e. Palindrome(UDF to return 1 if palindrome other wise return 0)

Q2. Write a UDF that takes an array and its size of an array and reverse alternate element of an array

Input:

2,3,1,4,5,6,8,9

Output:

3,2,4,1,6,5,9,8

Q3. Write a UDF that takes an array and its size of an array reverse each element of an array

Input:

23,45,67,98,12,31

Output:

32,54,76,89,21,13

Q4. Write a menu driven program using UDF (UDF should that takes an array, its size of an array and element) // **for practical file**

- a. to search (UDF to returns 1 if found and 0 if not found.)
- b. Sort
- c. Concatenate

Q5. Write a UDF that takes an array and its size of an array and display in the form of pattern

Input:

12345

Output:

1

12

123

1234

12345

Hint:

```
for(i=0;i<n;i++)
{
cout<<endl;
for(j=0;j<n;j++)
{
if(j<=i)
cout<<a[i];
}
}
```

Q6 Write a UDF that takes an array and its size of an array and display in the following pattern

Input	Output
12345	12345
	2345
	345
	45
	5

Q7. Write a UDF that takes an array and its size of an array and displays in the following pattern:

Input:	Output
12345	12345
	1234
	123
	12
	1

Q8. Write a UDF that takes an array and its size of an array and display in the following pattern:

Input:	Output
12345	5
	45
	345
	2345
	12345

Q9. Write a menu driven program using UDF (that takes an array and its size of an array)

- display largest and smallest in the array **//for practical file**
- swap the adjacent elements of the array.
Input 1,2,3,4,5,6,78 output – 2,1,4,3,6,5,8,
- display the first 3 largest values.
Input – 12,34,23,78,90,27,56,98,87
Output 1st -98 2nd - 90 3rd - 87
- Divide all those elements by 5 which are divisible by 5 and multiply other array elements by 2
Input 20,12,15,60,32 output-4,24,3,12,64
- Replace all the odd vales by its thrice and all the even values by its twice.
Input – 2,5,6,1,12,3 output - 4,125,36,1,144,27

Q20. Consider the linear array A[-10:10], B[1925:1990], C[25]

Find the number of elements in each array

Suppose base address of A=400 and size is 2 bytes, B=600 and size is 4 bytes, C=900 and size is 1 byte find the address of A[5], A[-3], B[1970], C[2], C[23].

Assignment – 2D

Hint:-

1. A UDF should take matrix and its size or row and column as parameter e.g. header of row total is `void Rowtot(int a[][30],int r, int c) { }` and for diagonal total is `int diatotal(int a[30][30],int s) { }`
2. For traversing in loop use

<code>for(i=0;i<n;i++) {</code>	<div style="border: 1px solid black; padding: 2px; display: inline-block;">Matrix</div>	<code>for(i=0;i<s;i++) {</code>
<code>for(j=0;j<c;j++)</code>	<div style="border: 1px solid black; padding: 2px; display: inline-block;">Square Matrix</div>	<code>for(j=0;j<s;j++)</code>
<code>{ } }</code>		<code>{ } }</code>

Q1. Write a menu driven program using UDF which takes an integer matrix, no of rows and no of columns as parameter) **//for practical file**

- a. sum of all the elements of matrix
- b. Display sum of even and odd elements of the matrix.
- c. Display maximum and minimum element of the matrix
- d. Display total of each row.
- e. Display total of each column.

Q2. Write a menu driven program using UDF (which takes an integer square matrix and size as parameter) **//for practical file**

- a. diagonal total.(UDF to return diagonal total)
- b. Display Diagonal element

Q3. Write a UDF which takes an integer matrix, no of rows and no of columns as parameter and return the total of row no.3

Input

```
1 2 3 4
5 6 7 8
1 2 5 7
3 8 9 1
```

Output

return 14 (5+6+7+8)

Q4. Write a UDF which takes an integer matrix, no of rows and no of columns as parameter and return total of column no 2

Input

```
1 2 3 4
5 6 7 8
1 2 5 7
3 8 9 1
```

Output

return 18(2+6+2+8)

Q5. Write a UDF which takes an integer matrix, no of rows and no of columns and element to find as parameter and return no of times element appears in the matrix.

Q6. Write a UDF which takes an integer matrix, no of rows and no of columns as parameter and display transpose of a matrix.

Q7. Write a menu driven program using UDF (which takes an integer matrix and size as parameter) **//for practical file**

- a. **print lower triangle of the matrix**

Input

```
1 2 3 4 5
5 6 1 7 9
3 4 2 1 8
1 2 3 4 6
5 6 1 7 8
```

Output

```
1
5 6
3 4 2
1 2 3 4
5 6 1 7 8
```

```

Hint
for(i=0;i<n;i++)
{
cout<<endl;
for(j=0;j<n;j++)
cout<<a[i][j]<<" ";
}
}

```

b.print lower triangle of the matrix

Input	Output
1 2 3 4 5	5
5 6 1 7 9	7 9
3 4 2 1 8	2 1 8
1 2 3 4 6	2 3 4 6
5 6 1 7 8	5 6 1 7 8

c. print upper triangle of the matrix

Input	Output
1 2 3 4 5	1 2 3 4 5
5 6 1 7 9	5 6 1 7
3 4 2 1 8	3 4 2
1 2 3 4 6	1 2
5 6 1 7 8	5

d.upper triangle of the matrix

Input	Output
1 2 3 4 5	1 2 3 4 5
5 6 1 7 9	6 1 7 9
3 4 2 1 8	2 1 8
1 2 3 4 6	4 6
5 6 1 7 8	8

Assignment- Strings

Hint:-

1. A UDF should take string e.g. header of sting_length() to find the length of the string will be int String_length(chgar s[]) { } and for frequency table is void Freq_table(char s[]){ }
2. For traversing in loop use

```

for(int i=0; s[i]!='\0';i++)
{
}

```

```

for(int l=strlen(s)-1;i>=0;i--)
{
}

```

Q1. Write menu driven program using UDFs which takes a string as parameter and do the needful:

- a) String Length return no of characters in the string(like strlen(s1);).
- b) Frequency table displays No of uppercase, no of lowercase, no of digits, no of special characters, no of words, no of lines.
- c) Reverse of the string
- d)

Q3. Write UDF which takes a 2 strings parameter and copy contents of 1st string to 2nd string (like strcpy(s1,s2);).

Q4. Write UDF which takes a 2 strings parameter and concatenate contents of 1st string to 2nd string (like strcat(s1,s2);).

Q5. Write UDF which takes a 2 strings parameter and compare contents of 1st string to 2nd string (like strcmp(s1,s2);).

Q5. Write UDF which takes a 1 string parameter and display lower triangle.

Input	Output
COMPUTER	C CO COM COMP COMPU COMPUT COMPUTE COMPUTER

Q6. Write UDF which takes a 1 string parameter and display lower triangle.

Input	Output
COMPUTER	R ER TER UTER PUTER MPUTER OMPUTER COMPUTER

Q7. Write UDF which takes a 1 string parameter and display UPPER triangle.

Input	Output
COMPUTER	COMPUTER COMPUTE COMPUT COMPU COMP COM CO C

Q8. Write UDF which takes a 1 string parameter and display UPPER triangle.

Input	Output
COMPUTER	COMPUTER OMPUTER MPUTER PUTER UTER TER ER R

Q9. Write UDF which takes a 1 string parameter and display REVERSE of string.

Input	Output
COMPUTER	RETUPMOC

Q10. Write UDF which takes a 1 string parameter and return 1 if it is a palindrome and 0 if not.

Other programs for practical file

Write programs in C++ for following using appropriate programming constructs

1. Multiplication of a number x up to n terms
2. Factorial of a given number n eg. $5! = 5 \times 4 \times 3 \times 2 \times 1$ and $0! = 1$
3. WAP to take input of two numbers and find weather they are co-prime or not.
HINT : Co-prime are the numbers which do not have any common factor except for 1. In other words two numbers having HCF=1 are co-prime.
4. WAP to take input of a numbers and find weather it is perfect number or not.
HINT : Perfect number is a number having sum of all its factors equal to double the number itself eg. 6 is perfect number as $1+2+3+6=12$
5. WAP to find the sum of the following series:
 - a. $1^2+3^2+5^2+7^2.....$ n terms
 - b. $1 - x^2/2! + x^4/4! - x^6/6! + x^n/n!$
 - c. $1+x^2/2!+x^3/3!...xn/n!$
6. Write Programs to produce following type of outputs (Nested Loops)
1
121
12321
1234321
7. Write a menu driven program to print various triangle (upper and lower)
8. Fibonacci and tribonnaci series
9. Write a menu driven program using UDF which takes an integer as parameter
 - a. Reverse of no
 - b. Palindrome
 - c. Find a digit
 - d. Armstrong no